

INJECTION SYRINGE WITH SEAL STRUCTURE

Background of the invention

1. Field of the Invention

5 The present invention relates to an injection syringe, more particularly, and to an injection syringe with seal structure which provides a complete seal structure in the injunction.

2. Description of the Related Art

10 Presently, the medical personnel suffer the diseases such as AIDS or infection from the needle stick resulting in death never stop so that the needle stick is the professional injury and always happens. According to the research, the 98% medical personnel could feel the potential danger and the 70% doctor fell, too. Although the injury of needle stick
15 is not serious but the injury always lead the person to die. After using the injection needle with the blood of the patient, the operators could infect if they are hurt by the needle stick.

 The needle stick always happens at the general beds and others such as operating room, intensive care unit, treatment room and
20 emergency room. What operation is easy to suffer the needle stick, obverse the medical behavior? The operation is put the cap back to the needle. Further, the needle is easy to hurt medical personnel when the needle after using does not collect. Some research is focused to eliminate the operation of putting the cap back to the needle for avoiding
25 the needle stick.

 Further, the injection syringe has some disadvantages such as the

seal of barrel of syringe because the seal of syringe is affected by the temperature. The material of syringe could be affected by the temperature so the seal of syringe is not good.

Now the injection syringe designs to the disposable syringe, and the syringe after using must be careful to handle in order to avoid the illegal behavior happening which the person sells the syringe after using.

Summary of the Invention

It is an object of the present invention to provide a scanner integrated circuit which discloses a gate integrated circuit comprising an output enable circuit for decreasing the 3 pins and 6 TCP spaces in the integrated circuit package process to get the effect of low cost.

It is an object of the present invention to provide an injection syringe with seal structure which discloses a complete seal structure for avoiding the syringe change by the temperature.

It is another object of the present invention to provide an injection syringe with seal structure which discloses a structure after using to damage the piston to avoid re-use.

It is still another object of the present invention to provide an injection syringe with seal structure which can damage the needle after using.

To achieve the above mentions and advantages, the injection syringe of the present invention comprises a hollow barrel, a needle seat and a plunge. The top of hollow barrel comprises an axial extension which has an upper channel and a lower channel for forming a positioning spring and a seal spring, and the inside of the plane which

the conjunction connects between the barrel and the axial extension has at least one piercer. The needle seat is placed in the hollow barrel, and bottom radius of a body of the needle seat is larger than the top one for tightly fastening with the seal spring. And, the top of needle seat has a
5 needle head seat which deposits a plurality of positioning sheets at the outside of it, and the needle seat is positioned on the axial extension by a channel of the needle head seat.

The top of plunge has a fastening seat which comprises a cylindrical column. An inclined plane of the cylindrical column comprises a
10 plurality of flukes for conjugating to the bulge loop at the top. The top of fastening seat has a piston which discloses a hole for passing the cylindrical column. And, the top of plunger has an opening to couple to the fastening seat and to easily break the plunger after using.

It is to be understood that both the foregoing general description and
15 the following detailed description are exemplary, and are intended to provide further explanation of the invention as claimed.

Brief Description of the Drawings

The accompanying drawing is included to provide a further understanding of the invention, and is incorporated in and constitutes a
20 part of this specification. The drawing illustrates an embodiment of the invention and, together with the description, serves to explain the principles of the invention. In the drawing,

Fig. 1 is an explosive view showing the syringe with seal structure of the present invention;

25 Fig. 2 is a sectional view showing the syringe with seal structure of the present invention;

Figs. 3 to 10 are schematic diagrams for operation showing the syringe with seal structure of the present invention.

Detailed Description of the Preferred Embodiments

5 Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings. Wherever possible, the same reference numbers are used in the drawings and the description to refer to the same or like parts.

10 Refer to Figs. 1 and 2, the injection syringe of the present invention comprises a hollow barrel 10 which has an axial extension 12 at the top wherein the inside of axial extension 12 comprises an upper channel 14 and a lower channel 16 to form a positioning spring 18 and a seal spring 20. The plane which the conjunction connects between the barrel 10
15 and extension 12 has at least one piercer 22 at the inside. The needle seat 30 is placed in the extension 12 and comprises a body 32. The radius of the bottom of body 32 is larger than the top one for tightly coupling to the seal spring 20. And, the seal spring 20 has a spring property so that the seal of barrel 10 has an excellent seal property.
20 The bottom of body 32 has a bulge loop 34, and the top of body 32 has a needle head seat 40 which has a needle 42. The outside of needle seat 40 has a plurality of positioning sheets 44, and each sheet 44 has a channel 46. When the needle seat 30 is placed in the extension 12, the channel 46 couples to the positional spring 18 for fastening the needle
25 seat 30 in the extension 12. And, each positioning sheet 44 at the upper of channel 46 of seat 40 has a pressing channel 48.

A plunger 50 is placed in the barrel 10, and comprises a flange 51 at the bottom. The top of plunger 50 has a fastening seat 52 and an opening 53. The plunger 50 is conjugated to the fastening seat 52. The fastening seat 52 has an axial channel 54 at the outside and a piston 70. The piston 70 is coupled to the fastening seat 52 by a plurality of fastening channels 56, depositing outside of seat 52, conjugating to a plurality of bulge rings, depositing inside of piston 70. The piston 70 has a hole 74 for passing a cylindrical column 60 of seat 52 and an inclined plane at the top. The top of inclined plane has a plurality of flukes which opposed to deposit, for example: the first fluke 62 opposes to a second fluke 64 and the first fluke 62 is taller than the second fluke 64.

Refer to Figs. 3 to 9, firstly, the needle 42 sticks the cap of medical bottle and pulls the plunger 50 back to absorb the medical liquid 80 into the hollow barrel 10. Further, the needle seat 30 must remove from the injection syringe after absorbing the liquid 80 to change the new needle seat to avoid the rest of cap leaving on the needle 42 when the needle 42 sticks the cap of medical bottle. So, the fingers presses the pressing channel 48 at the upper of the sheets 44 to remove the needle seat 30 and put a new needle seat 30 in the extension 12. When the needle seat 30 couples to the extension 12, the channel 46 at the upper of sheets 22 must conjugate to the positioning spring 18.

Refer to Fig. 4, pushing the plunger 50 toward the up for the air leaving the barrel 10. And, the bottom radius of body 32 is larger than the top one to tightly couple to seal spring 20 for leaving air. Because the barrel 10 has the excellent seal property, the liquid 80 could not leak.

Refer to Fig. 5, pushing the plunger 50 toward up makes the liquid 80 to inject into the human body.

Refer to Fig. 6, pushing the plunger 50 toward up is until the piercer 22 sticks through the piston 70 and makes the flukes 72, 74 to conjugate with the bulge loop 34. The piston 70 is stuck through to form a hole 76, refer to Fig. 7, by the piercer 22, and the outside wall of fastening seat 52 has the axial channel 54, refer to Fig. 1. The piston 70 has the hole 76 so that the barrel 10 is broken because the barrel 10 could leak to prevent re-use. Refer to Figs. 7 and 8, the flukes 72, 74 conjugates with the bulge loop 34, the plunger 50 pulls down to make the channel 46 leaving the positioning spring 18 and pull the needle seat 30 into the barrel 10. Further, the inclined plane and the flukes having different height make the needle seat aslope in the barrel 10 for avoiding reuse of syringe. Refer to Fig. 9, pushing the plunger 50 toward up makes the needle 42 crankily.

Refer to Fig. 10, the user spins the plunger 50 to break it and separate to the fastening seat 52.

The injection syringe of the present invention discloses the positioning spring 18 and channel 46 of sheets 44 to make the needle seat 30 fastening on the barrel 12. Using the seal spring 20 and body 32 get the excellent seal property in accordance to the spring property of seal spring 20. The spring 20 could not be affected by the temperature. Further, after injecting, using the piercer 22 sticks the piston 60 to form the hole 76 for losing the seal property to avoid reuse of syringe. And, spinning the plunger 50 to break and separate to the fastening seat 52 avoids reuse of syringe.

Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents
5 may be resorted to, falling within the scope of the invention.